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may be increased by artificial respiration, but never longer than for a few minutes. Its principal action is conceived to be upon the brain; but it appears to act upon the heart also. The stomach sometimes bears marks of inflammation; but the author has seen no instance of the intestines being inflamed.

The experiments of Mr. Brodie on corrosive sublimate, have led him to conclusions very different from the preceding respecting its mode of action. When applied to a wounded part, it produces a slough, without any affection of the general system; and when taken internally, its effects, he thinks, may be best explained by its local action on the stomach alone, unconnected with any absorption of it into the circulation.

When a solution of corrosive sublimate is taken into the stomach, the mucous membrane is found of a dull grey colour, having lost its texture, so as to be easily separated from the muscular coat; and as this precludes the idea of absorption into the circulation, Mr. Brodie conceives that its deleterious effects depend entirely upon its chemical action on the stomach, and that the brain and heart are thence affected by nervous sympathy.

Observations of a second Comet, with Remarks on its Construction. By William Herschel, *LL.D. F.R.S.* Read March 12, 1812. [*Phil. Trans.* 1812, *p.* 229.]

The tendency of Dr. Herschel's observations is to point out a difference between this second comet and the former, of which he lately gave an account to the Society.

The latter appeared to him as a nucleus about 5″ in diameter, surrounded by a very faint chevelure. Since this appearance on the two first days of observation was not well defined, Dr. Herschel was in doubt whether to consider the nucleus as corresponding to the head of the former comet, or to the bright planetary body that he had observed in its centre; being extremely small in comparison to the head, and as much too large to be supposed of a planetary construction. But on two subsequent days of observation, the nucleus was pretty well defined, even with a power of 170; and the author was led to consider the latter as the more probable opinion. On the fifth day of observation (which was the last time that it could be seen, by reason of the interference of the moon's light), Dr. Herschel attended carefully to the magnitudes of the body, as it appeared to different magnifiers; and by subsequent comparison on the following morning of objects of known diameter with his recollection of these magnitudes, he determined the measure of the nucleus to have been 5″·2744.

Since the distance of this comet from us was at that time rather greater than that of the sun, the real magnitude of the diameter thus measured is estimated at 2637 miles.

As the light of the chevelure was too feeble to be seen at this time, on account of the light of the moon, its greatest extent, in a direc-

tion opposite to that of the sun, was estimated from the observations made two days preceding, when it measured about 9′ 40″, and its length, consequently, 659,000 miles.

Dr. Herschel remarks, that the physical construction of this comet must have been extremely different from that of the former, approaching very nearly to the planetary condition, and having a diameter nearly one third that of the earth.

The light by which it was seen he also considers as planetary; that is to say, reflected from the sun, and not phosphorescent, like the preceding; for if this were self-luminous, says Dr. Herschel, we could hardly account for its little density, which would scarcely bear to be magnified even to 107 times, although the former was seen with a power of 600 even better than with one that was lower.

The chevelure, however, he conceives to consist of phosphoric matter suspended in an elastic atmosphere that surrounds the body of the comet; and he ascribes the faint appearance of this chevelure, according to the theory advanced in his late communication, to the existence of a very small quantity of nebulous matter, which had not been consolidated by passing through a perihelion. And hence, says the author, this last comet was but little more affected by a perihelion passage than a planet would have been.

Additional Experiments on the Muriatic and Oxymuriatic Acids. By William Henry, *M.D. F.R.S. V.P. of the Lit. and Phil. Society, and Physician to the Infirmary, at Manchester.* Read March 19, 1812. [*Phil. Trans.* 1812, *p.* 238.]

In consequence of the discussion which has lately taken place concerning the nature of these acids, the author has been induced to repeat, with more perfect apparatus than he formerly possessed, a part of those experiments of which he published an account in the Philosophical Transactions for 1800, and to add others tending to elucidate the same subject. Those experiments in general related to the *electrization* of muriatic acid gas; but there was also one experiment in which he endeavoured and supposed that he had succeeded in extracting water from it, by means of muriate of lime, as sensible heat was evolved as soon as the muriate of lime was brought into contact with the gas. But he has since found that the evolution of heat occurs only when the muriate of lime has attracted moisture either from the atmosphere or from the mercury through which it is passed; for then it condenses a portion of the acid gas.

In his present experiments on electrization, Dr. Henry confirms his former results with regard to the evolution of hydrogen by that means; and he observes, that when the electrization of muriatic acid gas is performed over mercury, the hydrogen evolved amounts to about one fifteenth of the original quantity of gas employed. There appears, however, to be a contraction of volume, in consequence of the absorption of a part of the acid to form calomel. When the hydrogen amounts